AMENDMENT TO THE CLAIMS

1.   (previously presented): An industrial process diagnostic apparatus for identifying a root cause of an aberration in an industrial process, comprising:

> a plurality of process models, each model related to a physical implementation of an industrial process;
>
> a model selection input configured to receive a selected model, the selected model uniquely identifying one of the process models;
>
> a process signal input configured to receive a plurality of process signals related to the process; and
>
> a root cause output indicative of a source of the aberration in the process, the root cause output a function of the selected model and the process signals.

2.   (previously presented): The apparatus of claim 1 including a model options input configured to receive model options related to devices which are optional in the selected model, and wherein the root cause output is further a function of the model options.

3.   (previously presented): The apparatus of claim 2 wherein the model options comprise process signals.

4.   (previously presented): The apparatus of claim 1 wherein each model includes a rule base.

5.   (previously presented): The apparatus of claim 4 wherein the rule base provides a relationship between the process signals and a root cause of an aberration in the process.

6.   (previously presented): The apparatus of claim 4 wherein each model includes a plurality of rule bases, each rule base

related to the number of process signals.

7.   (previously presented): The apparatus of claim 1 wherein the apparatus is implemented in a PC.

8.   (previously presented): The apparatus of claim 1 wherein the apparatus is implemented in a process device.

9.   (previously presented): The apparatus of claim 8 wherein the process device comprises a transmitter.

10.   (previously presented): The apparatus of claim 8 wherein the process device comprises a controller.

11.   (previously presented): The apparatus of claim 1 wherein the model includes a graphical model which provides a graphical representation of the physical implementation of the process.

12.   (previously presented): The apparatus of claim 1 wherein the plurality of process signals comprise a primary process variable (PV), a control demand (CD) signal, and a setpoint (SP).

13.   (previously presented): The apparatus of claim 12 wherein the plurality of process signals further includes a process signal indicative of an actual control value provided in response to the control demand (CD).

~~12~~14.(currently amended):   The apparatus of claim ~~10~~ 1 wherein the plurality of process signals further includes a redundant primary process variable (PV).

~~13~~15.(currently amended): The apparatus of claim 1 wherein at least one of the plurality of process models is representative of a liquid level process control loop.

~~14~~16.(currently amended): The apparatus of claim 1 wherein at least one of the plurality of process models is representative of a process fluid flow control loop.

~~15~~17. (currently amended): A diagnostic method in an industrial process for identifying a root cause of an aberration in an industrial process, comprising:

    selecting a process ~~mode~~ model from a plurality of process
        models, each model related to a physical implementation
        of an industrial process, the selected model uniquely
        identifying one of the process ~~models~~model wherein each
        model includes a rule base;
    receiving a plurality of process signals related to the
        process; and
    identifying a root cause indicative of a source of the
        aberration in the process, the identifying as a
        function of the selected model and the process signals.

~~16~~18. (currently amended): The method of claim ~~15~~17 including receiving model options related to devices which are optional in the selected model, and wherein identifying the root cause is further a function of the model options.

~~17~~19. (currently amended): The method of claim ~~16~~18 wherein the model options comprise process signals.

~~18~~20. (cancelled)

~~19~~21. (currently amended): The method of claim ~~18~~17 wherein the rule base provides a relationship between the process signals and a root cause of an aberration in the process.

~~20~~22. (currently amended): The method of claim ~~18~~17 wherein each model includes a plurality of rule bases, each rule base related to the number of process signals.

~~21~~23. (currently amended): A PC implementing the method of claim ~~15~~17.

~~22~~24. (currently amended): A process device implementing the method of claim ~~15~~17.

~~23~~25. (currently amended): The method of claim ~~15~~17 wherein the model includes a graphical model and the method including displaying a graphical representation of the physical implementation of the process.

~~24~~26. (currently amended): The method of claim ~~15~~17 wherein the plurality of process signals comprise a primary process variable (PV), a control demand (CD) signal, and a setpoint (SP).

~~25~~27. (currently amended): The method of claim ~~24~~26 wherein the plurality of process signals further includes a process signal indicative of an actual control value provided in response to the control demand (CD).

~~26~~28. (currently amended): The method of claim ~~24~~26 wherein the plurality of process signals further includes a redundant primary process variable (PV).

2729. (currently amended): The method of claim 1517 wherein at least one of the plurality of process models is representative of a liquid level process control loop.

2830. (currently amended): The method of claim 1517 wherein at least one of the plurality of process models is representative of a process fluid flow control loop.

2931. (currently amended): A storage medium containing computer instructions configured to implement the method of claim 117.

3032. (currently amended): An industrial process diagnostic apparatus for identifying a root cause of an aberration in an industrial process, comprising:

    means for storing a plurality of process models, each model related to a physical implementation of an industrial process;

    means for receiving a model selection input uniquely identifying one of the process models;

    means for receiving a plurality of process signals related to the process; and

    means for identifying a root cause indicative of a source of the aberration in the process as a function of the selected model and the process signals.